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EXAMINER	
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ART UNIT	PAPER NUMBER
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/880,689	FIELDS et al
	Examiner	Group Art Unit
	J. DOTE	1756

—The MAILING DATE of this communication appears on th cover sheet beneath the correspondence address—

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 5/29/03.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-42 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 40, 41 is/are allowed.

☒ Claim(s) 1-30, 32-35, 37-39, 42 is/are rejected.

☒ Claim(s) 31, 36 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Stat ment(s), PTO-1449, Paper No(s). _____

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Revi w, PTO-948

☐ Int rview Summary, PTO-413

☐ Notice f Informal Pat nt Applicati n, PTO-152

☐ Oth r _____

Office Action Summary

1. The examiner acknowledges the amendments to claims 1, 30, and 33 filed in Paper No. 13 on May 29, 2003. Claims 1-42 are pending.

2. The rejection of claims 1, 2, 5-7, 10, 16, 19, 31 and 36 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Jan. 29, 2003, Paper No. 11, paragraph 4, has been withdrawn in response to the amendment to claim 1, adding the limitation that the inorganic particles are colloidal "silica" particles.

The rejections of claims 30 and 35 under 35 U.S.C. 102(b) over US 5,744,274 (Wilson'274), and under 35 U.S.C. 102(e) over US 6,221,550 B1 (Wilson'550), set forth in Paper No. 11, paragraphs 19 and 20, have been withdrawn in response to the amendment to claim 30, adding the limitation that the toner particles further comprise a surface treatment agent. Neither reference exemplifies toner particles having a surface treatment agent and a charge rate, as recited in the instant claims.

The rejections under 35 U.S.C. 103(a) of claims 1-29 over US 6,416,920 B1 (Hopper'920) combined with the other cited references, set forth in Paper No. 11, paragraphs 22-27, have been withdrawn in response to the amendment to claim 1, adding the limitation that the colloidal silica particles are "not in a charged state." As noted by applicants in Paper No. 13, page 16,

lines 11-17, "at column 14, line 29, Hopper et al. relates to the use of a cationic silica [i.e., Hopper's colloidal aluminized silica] . . . [i]n other words, the silica is positively charged . . . [t]his is quite different from the claimed invention as recited in claim 1 wherein the colloidal silica particles are not in a charged state."

3. The term "2'/10' MECCA charge ratio" is defined as the ratio of the level of charge obtained in 2 minutes of charging the toner to the level of charge obtained after 10 minutes of charging, where the charge is determined in a MECCA device. See the instant specification, page 19, lines 15-21, and page 22, lines 1-15.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 4, 8, 9, 11-15, 17, 18, 20-29, 32-34, and 37-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 4, 8, and 11 are indefinite in the phrase "inorganic particles comprise silica" because the phrase is redundant and does not further limit claim 1. Claim 1 recites that the "inorganic particles are colloidal silica particles" (emphasis added).

Claims 12 and 14 are indefinite in the phrase "said inorganic particles comprise from about . . . wt% to about . . . wt% silica" (emphasis added) for lack of unambiguous antecedent basis in claim 1. Claim 1, from which claims 12 and 14 depend, recites that the "inorganic particles are colloidal silica particles" (emphasis added). It is not clear how colloidal silica comprises only about 0.1 wt% to about 0.5 wt% of colloidal silica. The examiner suggests that applicants amend the phrase to read "said colloidal silica is present from about . . .".

Claim 33 is indefinite in the phrase "wherein the toner particles having a charge rate such that the 2'/10' MECCA charge ratio is from about 0.9 to 1.1" because it is redundant and does not further limit claim 41, from which claim 33 depends. Claim 41, which depends from claim 40, already recites that the toner particles have the charge rate recited in instant claim 33.

6. Claim 1 is objected to because of the following informalities:

The phrase "based on the weight of the toner" should be rewritten as "based on the weight of the toner particles" to avoid any ambiguity of antecedent basis. Claim 1 recites "toner particles," while claims 12 and 14, which depend from claim 1, recite the phrase "based on the weight of the toner particles."

Appropriate correction is required.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 30 and 35 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,074,795 (Watanabe).

The claims are rejected for the reasons set forth in Paper No. 9, paragraph 8, which are incorporated herein by reference.

Although applicants have provided a copy of the Nash reference "Toner charge instability," they did not provide the source and publishing date of the reference.

Based on the teachings in Nash and applicants' arguments set forth in their response filed in Paper No. 10 on Nov. 18, 2002, the rejection would have been withdrawn, if applicants provided the necessary information regarding the reference to Nash.

9. Claims 1-4, 16, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable Watanabe, as evidenced by US 6,103,439 (Ogawa) and US 5,422,214 (Akiyama).

Watanabe discloses a developer comprising carrier particles and a toner. The toner particles comprise a binder resin, carbon black, a charge control agent, and a releasing composition A. Releasing composition A comprises 100 parts by weight of polypropylene wax as the releasing agent and 20 parts by weight silica particles R-972, manufactured by Nippon Aerosil Co. See example 1 at cols. 6-7. Silica particles R-972 are recognized in the art as "colloidal" silica. See Ogawa, col. 12, lines 12-13; and Akiyama, col. 30, lines 34-38. The carrier particles may comprise iron powder, ferrite powder, magnetite, and nickel powders. Col. 6, lines 25-27.

Watanabe's toner in example 1 comprises 84.7 wt% of a styrene/butyl acrylate binder resin, 1.7 wt% of a charge control agent, about 4.2 wt% of a polyethylene releasing agent, about 0.8 wt% of the "internal" silica particles, based on the weight of the toner particles. The percentages are determined from the amounts reported in Watanabe's example 1.

The upper limit of the range "about 0.1 wt% to about 0.5 wt%" recited in instant claim 1 on the present record reads on the amount of "about 0.8 wt%" disclosed by Watanabe, since the term "about" admits variation and there is no evidence on the

present record showing that the amount of "about 0.5 wt%" is critical. Put another way, there is no evidence showing that the amount of "about 0.5 wt%" is different in kind from "about 0.8 wt%."

If the amount of "about 0.8 wt%" is considered to be outside the range recited in instant claim 1, Watanabe also discloses that releasing agents can be preferably used in an amount of about 0.5 to about 20 wt%. Col. 2, lines 45-47. Watanabe discloses that toners comprising the releasing agent in combination with particles, such as silica particles, capable of absorbing said releasing agent, have good transferability and durability, and produce good quality toner images without offset. Col. 2, lines 23-29.

If the amount of the polypropylene releasing agent in Watanabe's toner in example 1 were adjusted to about 0.5 wt% based on the weight of the toner particles, as taught by Watanabe, the amount of the polyethylene releasing agent would be about 0.5 part by weight and the amount of silica particles would be about 0.1 part by weight per 100 parts by weight of toner particles. The amount of binder resin in the toner in example 1 would be adjusted to about 93.5 parts by weight, while the amounts of colorant and charge control agent remain the same. The silica particles would be present in an amount of about 0.1 wt% based on the weight of the toner particles, which is

within the range recited in instant claim 1. (The amount of about 0.1 part by weight is determined from the composition of releasing composition A in Watanabe's example 1).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe, to adjust through routine experimentation the amount of the polypropylene releasing agent to about 0.5 wt% based on the weight of the toner particles in the toner disclosed by Watanabe, resulting in the amount of about 0.1 wt% of silica particles in the toner particles, because that person would have had a reasonable expectation of successfully obtaining a developer having good transferability and durability, and producing good quality toner images without offset as taught by Watanabe.

Watanabe's toner in example 1 does not comprise a surface treatment agent as recited in instant claim 1. However, Watanabe teaches that hydrophobized silica particles may be further externally added to the toner to improve fluidity, developing properties, and transferability of the toner. Col. 6, lines 13-18, and examples 2-8. Watanabe's toners in examples 2-8 comprise 0.2, 0.3, 0.4, or 0.5 parts by weight of externally added hydrophobized silica particles, based on 100 parts by weight of toner particles.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe, to further externally add hydrophobized silica particles in an

amount of 0.2 to 0.5 parts by weight per 100 parts by weight of toner particles to the developer disclosed or rendered obvious over the teachings of Watanabe, because that person would have had a reasonable expectation of successfully obtaining a developer having the properties disclosed by Watanabe and having improved fluidity, developing properties, and transferability of the toner.

10. Claims 5, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, as applied to claim 1 above, further combined with US 5,230,978 (Kawasaki).

Watanabe, as evidenced by Ogawa and Akiyama, renders obvious a developer as described in paragraph 9 above, which is incorporated herein by reference.

Watanabe's toner in example 1 comprises a styrene/butylacrylate copolymer as the binder resin. Watanabe does not disclose that the copolymer is cross-linked as recited in instant claim 5. However, Watanabe discloses that the binder resin can include known resins that are used for conventional toners, such as copolymers of styrene and acrylates. Col. 5, lines 3-17.

Kawasaki discloses a toner binder resin comprising a cross-linked styrene-acrylate copolymer, which is within the scope of

the binder resin limitation recited in instant claim 5. Col. 2, lines 13-24, and production examples 2-7. Kawasaki discloses that toners comprising said copolymer have low-temperature fixing properties, and have excellent strength to be used in high-speed copying machines. Col. 1, lines 57-61. The toners have a wide non-offset temperature range and provide stable and good-quality images without fog. Col. 1, line 63, to col. 2, line 3, and Table 1 at col. 6, examples 2-7.

Claim 10 is written in product-by-process format. Kawasaki does not disclose that the cross-linked styrene-acrylate copolymer is made by a "limited coalescence" process as recited in instant claim 10. However, as discussed above, Kawasaki's copolymer meets the compositional limitations recited in instant claim 5. Accordingly, Kawasaki's copolymer appears to be the same or substantially the same as the toner resin made by the "limited coalescence" process recited in instant claim 10. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kawasaki, to use Kawasaki's cross-linked styrene-acrylate copolymer as the binder resin in the toner rendered obvious over the teachings of Watanabe, because that person would have had a reasonable

expectation of successfully obtaining a developer capable of being used in a high-speed copier, and providing high-quality images without fog when fixed at low temperatures.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, as applied to claim 1 above, further combined with US 5,990,332 (Sukata).

Watanabe, as evidenced by Ogawa and Akiyama, renders obvious a developer as described in paragraph 9 above, which is incorporated herein by reference.

Watanabe's toner in example 1 does not comprise an organo iron complex charge agent as recited in instant claim 6. However, Watanabe discloses that the charge control agent can include one or more known charge control agents, such as metal complexes of monoazo dyes, and iron complexes of salicylic acid, dialkylsalicylic acids, naphtholic acid, or dicarboxylic acid. Col. 5, lines 53-54, and col. 6, lines 7-11.

Sukata discloses charge controlling iron complexes of aromatic hydroxycarboxylic acids represented by formula (I) at col. 2, lines 40-59. See Table 1, compounds 35 to 48 (which include complexes of salicylic acids or of hydroxy naphtholic acids), example 3 at col. 19, and example 16 at col. 25. Sukata discloses that said complexes of aromatic hydroxycarboxylic acid

have excellent charge control or charge enhancing properties, environmental resistance to temperature and humidity storage stability, heat stability, and durability. Col. 2, lines 16-27, and example 16. When the complexes are used in toners, they do not affect toner fixability or offset property. Col. 2, lines 28-29.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe and Sukata, to use Sukata's iron complex of an aromatic hydroxycarboxylic acid as the charge control agent in the toner rendered obvious over the teachings of Watanabe, because that person would have had a reasonable expectation of successfully obtaining a developer having the benefits disclosed by Sukata.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, as applied to claim 1 above, further combined with US 5,707,772 (Akimoto).

Watanabe, as evidenced by Ogawa and Akiyama, renders obvious a developer as described in paragraph 9 above, which is incorporated herein by reference.

Watanabe's toner in example 1 does not comprise a polyethylene wax as recited in instant claim 6. However, Watanabe discloses that the releasing agent can equally be a low

molecular weight polyethylene wax. Col. 4, lines 49-50 and 55. Watanabe discloses that releasing agents having a melting point from about 60 to about 160°C can used to prepare toners having good preservability, good resistance to blocking, and good releasability from fixing rollers. Col. 4, lines 58-61.

Akimoto discloses a low molecular weight polyethylene releasing agent synthesized by using a metallocene catalyst. Akimoto discloses that said polyethylene releasing agent has a sharp molecular weight distribution and a melting point of 80°C. Col. 2, lines 61-64, and releasing agent **2** in Table 1. The melting point of 80°C is within the teachings of Watanabe. Akimoto discloses that a toner comprising said polyethylene releasing agent has improved storage stability, fixing property, and durability. Col. 2, lines 65-67. The toner also exhibits little off-set and less "winding phenomenon." Col. 2, lines 21-22, and toner **2** in Table 2.

It would have been obvious for a person having ordinary skill in the art to use Akimoto's polyethylene releasing agent as the wax in the toner rendered obvious over the teachings of Watanabe, because that person would have had a reasonable expectation of successfully obtaining a developer having the improvements disclosed by Akimoto.

13. Claims 8, 9, 12, 14, 17, 18, 21, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, combined with Kawasaki, as applied to claims 5, 10, and 19 above, further combined with Sukata.

The teachings of Watanabe, as evidenced by Ogawa and Akiyama, combined with teachings of Kawasaki render obvious a developer as described in paragraph 10 above, which is incorporated herein by reference. The amounts of the charge control agent used in the Watanabe's toner in example 1 is within the ranges recited in instant claims 12 and 14. The amounts of the colloidal silica particles and binder resin in Watanabe's toner of example 1 are also within the ranges recited in instant claim 12. The amount of about 0.1 wt% of colloidal silica particles, the amount of about 93.5 wt% of binder resin, and the amount of 0.2 to 0.5 wt% of externally added hydrophobized silica particles amount, based on the weight of the toner particles, rendered obvious over the teachings of Watanabe, are within the ranges recited in instant claims 12 and 14.

Watanabe's toner in example 1 does not comprise an organo iron complex charge agent as recited in instant claims 8, 12, and 14. However, Watanabe discloses that the charge control agent can include one or more known charge control agents, such as metal complexes of monoazo dyes, and iron complexes of

salicylic acid, dialkylsalicylic acids, naphthoic acid, or dicarboxylic acid. Col. 5, lines 53-54, and col. 6, lines 7-11.

Sukata discloses charge controlling iron complexes of aromatic hydroxycarboxylic acids represented by formula (I). The discussion of Sukata in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe and Sukata, to use Sukata's iron complex of an aromatic hydroxycarboxylic acid as the charge control agent in the toner rendered obvious over the combined teachings of Watanabe and Kawasaki, because that person would have had a reasonable expectation of successfully obtaining a developer having the benefits disclosed by Sukata.

14. Claims 11, 13, 15, 20, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, combined with Kawasaki and Sukata, as applied to claims 8, 9, 12, 14, 17, 18, 21, and 23, above, further combined with Akimoto.

The teachings of Watanabe, as evidenced by Ogawa and Akiyama, combined with the teachings of Kawasaki and Sukata render obvious a developer as described in paragraph 13 above, which is incorporated herein by reference.

The amount of about 4.2 wt% of the releasing agent disclosed in Watanabe's toner in example 1, and the amount of about 0.5 wt% rendered obvious over the teachings of Watanabe, are both within the range recited in instant claim 13. The amount of "about 1.8 wt%" recited in instant claim 15 on the present record reads on the amount of "about 0.5 wt%," since the term "about" admits variation and there is no evidence on the present record showing that the amount of "about 1.8 wt%" is critical. Put another way, there is no evidence showing that the amount of "about 1.8 wt%" is different in kind from "about 0.5 wt%."

Watanabe's toner in example 1 does not comprise a polyethylene wax as recited in instant claims 11, 13, and 15. However, Watanabe discloses that the releasing agent can equally be a low molecular weight polyethylene wax. Col. 4, lines 49-50 and 55. Watanabe discloses that releasing agents having a melting point from about 60 to about 160°C can used to prepare toners having good preservability, good resistance to blocking, and good releasability from fixing rollers. Col. 4, lines 58-61.

Akimoto discloses a low molecular weight polyethylene releasing agent. The discussion of Akimoto in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, to use Akimoto's polyethylene releasing agent as the wax in the toner rendered obvious over the teachings of Watanabe, Kawasaki, and Sukata, because that person would have

had a reasonable expectation of successfully obtaining a developer having the improvements disclosed by Akimoto.

15. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, combined with Kawasaki and Sukata, as applied to claim 21 above, further combined with US 5,500,320 (Saha).

The teachings of Watanabe, as evidenced by Ogawa and Akiyama, combined with the teachings of Kawasaki and Sukata render obvious a developer as described in paragraph 13 above, which is incorporated herein by reference.

Watanabe does not disclose that the carrier particles can comprise strontium ferrite particles as recited in the instant claims. However, Watanabe discloses that the carrier particles can comprise ferrite powders coated with a resin. Col. 6, lines 25-27.

Saha teaches hard magnetic carrier particles comprising strontium ferrite particles coated with a polymeric coating. Col. 3, lines 58-67, and col. 9, lines 43-46. Saha discloses that said carrier particles provide developer compositions for magnetic brush development having high development speeds without loss of copy image quality. Col. 3, lines 2-15, col. 6, lines 25-39, and col. 10, lines 6-41.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Saha, to use Saha's

strontium ferrite resin coated particles as the carrier particles in the developer rendered obvious over the combined teachings of Watanabe, Kawasaki, and Sukata, because that person would have had a reasonable expectation of successfully obtaining a developer capable of being used for magnetic brush development having high development speeds without loss of copy image quality.

16. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, as evidenced by Ogawa and Akiyama, combined with Kawasaki, Sukata, and Saha, as applied to claim 27 above, further combined with US 5,102,769 (Creatura).

The teachings of Watanabe, as evidenced by Ogawa and Akiyama, combined with the teachings of Kawasaki, Sukata, and Saha render obvious a developer as described in paragraph 15 which is incorporated herein by reference.

Saha does not teach that its strontium ferrite carrier particles are coated with a blend of polyvinylidiene and polymethmethacrylate polymers as recited in instant claims 28 and 29. However, Saha teaches that his carrier particles can be coated with a poly(vinylidiene fluoride) resin (e.g., KYNAR) or polymethacrylate resins. Col. 7, lines 7 and 14-15.

Creatura teaches that magnetic carrier particles can be coated with a polymeric coating comprising a blend of

poly(vinylidiene fluoride) and poly(methylmethacrylate) in a weight of ratio of 3 to 2. Example V at cols. 11-12. The ratio of 3 to 2 meets the ratio of about 80/20 to about 50/50 recited in instant claim 29. Creatura discloses that developers comprising said carrier particles provide images having acceptable solids, excellent halftones, and desirable line resolution, with acceptable or substantially no background deposits. Col. 10, lines 25-29.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Creatura, to coat Saha's strontium ferrite carrier particles with Creatura's polymeric coating and to use those carrier particles in the developer rendered obvious over the combined teachings of Watanabe, Kawasaki, Sukata, and Saha, because that person would have had a reasonable expectation of successfully obtaining a developer capable of providing toner images having acceptable solids, excellent halftones, and desirable line resolution, with acceptable or substantially no background deposits, as taught by Creatura.

17. Applicants' arguments filed in Paper No. 13 with respect to the rejections set forth in paragraphs 9-16 above have been fully considered but they are not persuasive.

Applicants argue that the rejections over Watanabe fail because Watanabe's silica particles AEROSIL R972 are not colloidal particles as required in instant claim 1, but are hydrophobic fumed silica particles, as shown in the Degussa Corporation literature provided by applicants. Applicants assert that colloid silica, as shown in the web pages of Fuso and Nissan Chemicals, is dispersible in water, while hydrophobic fumed silica Aerosil R972 is not.

However, instant claims 1 and 42 do not recite that the colloidal silica is dispersible in water. Rather, the instant claims only recite that the inorganic particles are "colloidal silica particles." The instant specification only discloses the use of "colloid silica particles." See the instant specification, page 8, line 18. The specification does not disclose that the colloid silica particles are those obtained from Fuso or Nissan Chemicals. Nor does the specification define the colloidal silica particles of the invention as being dispersible in water. Applicants cannot argue patentability based on limitations that are not present in the claims.

Furthermore, the Ullmann's Encyclopedia of Industrial Chemistry, states that "[t]he particle dimension is the primary parameter that governs the properties of colloidal systems. In a practical sense, any particle that has a linear dimension in the range 10^{-3} to 1 μm can be defined as a colloidal particle." See

Ullmann's Encyclopedia of Industrial Chemistry, fifth revised edition, Volume A7, VCH Verlagsgesellschaft mbH, D-6940 Weinheim, copyright © 1986, page 341, col. 1, lines 5-9. As noted in the rejection in paragraph 9 above, the prior art of Ogawa and Akiyama, which are both drawn to toners, identifies the commercially available silica particles R-972, manufactured by Nippon Aerosil Co., as colloidal silica particles. Ogawa and Akiyama are assigned to Sharp Kabushiki Kaisha and Fuji Xerox Co., respectively. In addition, other US patents assigned to other companies that manufacture toners also identify silica particles AEROSIL R972, manufactured by Degussa, as colloidal particles. See for example, US 4,853,311 (Tavernier, assigned to AGFA-Gavaert, N.V.), col. 6, lines 35-45, and col. 10, lines 33-35; and US 5,543,259 (Schwarz, assigned to XEROX Corp.), col. 33, lines 42-43. According to Akiyama, commercially available silica particles R972 have an average particle size 0.016 μm, which is within the size range disclosed in Ullmann's. See Akiyama, col. 30, lines 35-38. Thus, in light of the definition of colloidal particle in Ullmann's and the disclosures in the prior art, it appears that the toner art uses the term "colloidal silica" to refer to silica particles having a particular size, i.e., a colloidal particle size. How the particles are made appears to be irrelevant. Accordingly, on the

present record, Watanabe's internally added silica particles are colloidal silica particles as recognized in the toner art.

Applicants also argue that the examiner's calculation of the amount of releasing agent is "not completely valid" for the reasons set forth in a previous response (Paper No. 10).

These objections have already been addressed. See the discussion in Paper No. 11, paragraph 18. To recapitulate, as discussed in the rejection in paragraph 9 above, Watanabe teaches that its releasing agent composition provides toners having good transferability and durability, and produce good quality toner images without offset. Col. 2, lines 23-34. Watanabe also teaches that the releasing agent is preferably present in an amount of about 0.5 to about 20 wt%. Col. 2, lines 45-47. Although Watanabe may not exemplify toners comprising a releasing agent in an amount of about 0.5 wt%, "[I]n a section 103 inquiry, 'the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.'" Merck & Co. Inc. v. Biocraft Laboratories Inc., 10 USPQ2d 1843, 1846 (Fed. Cir. 1989) (quoting In re Lamberti, 192 USPQ 278, 280 (CCPA 1976)). Furthermore, the examiner's calculation of the amount of silica particles is not in error. The weight ratio of silica particles to polypropylene wax in releasing composition A is 0.20

(i.e., 20/100). The weight ratio of about 0.1 wt% of silica particles to about 0.5 wt% of polypropylene wax is also 0.20.

Accordingly, for the reasons discussed above and in the rejections in paragraphs 9-16, supra, the rejections over Watanabe stand.

18. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,912,009 (Amering) combined with Diamond, Handbook of Imaging Materials, p. 169.

Amering discloses an electrophotographic developer comprising a toner comprising toner particles and a magnetic carrier. See example 1. The toner particles comprise a cross-linked styrene-acrylic resin, a colorant, and a charge control agent. The cross-linked styrene-acrylic resin is obtained by a suspension polymerization method in the presence of colloidal silica as a suspending agent. Col. 7, lines 34-50. Amering teaches that the resulting resin comprises dispersed therein colloidal silica. Amering discloses that the toner comprising said resin has unexpected advantages, such as good environmental stability. Col. 5, lines 6-18. In other words, the charge of the toner stays substantially stable.

Amering does not exemplify toners further comprising a surface treatment agent as recited in the instant claims. However, the use of surface additives are well known in the art

of electrophotographic toners. See Diamond, page 169. Diamond discloses that the addition of surface additives such as fumed silicas to the surface of toner particles dramatically improves the flow properties of said particles that would otherwise tend to stick to each other. Diamond also discloses that the use of said silicas improves the charge stability of the toner and carrier mixture; and improves toner transfer from the photoreceptors to paper by lowering adhesion of the toner to the photoreceptor. Diamond also discloses that for blade cleaning, surfactant materials such as zinc stearate are blended with the toner to lubricate the blade passing over the photoreceptor.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Diamond, to externally add fumed silicas and/or zinc stearate to the toner particles disclosed by Amering, because that person would have had a reasonable expectation of successfully obtaining a developer having improved toner flowability, charge stability, transferability, and cleaning properties.

Applicants' arguments filed in Paper No. 13 have been fully considered but they are not persuasive.

Applicants argue that the addition of fumed silica particles would affect the properties sought by Amering, a toner having stable chargeability with respect to relative humidity, as evidenced by the showing in the Rule 132 declaration, which was

executed by James H. Anderson on May 29, 2003, filed in Paper No. 13 on May 29, 2003.

However, the above rejection states that it would have been obvious to add fumed silica or zinc stearate to Amering's toner. The limitation "at least one surface treatment agent" includes the surface agent zinc stearate taught by Diamond. Applicants have not shown that the addition of the surface agent zinc stearate also affects the chargeability of Amering's toner. Furthermore, the showings in the Rule 132 declaration and the instant specification are insufficient to show that the toner recited in instant claim 42 provides unexpected results over Amering because the showing in the instant specification is not commensurate in scope with the instant claims. Example 4 of the instant specification comprises particular toner particles comprising particular amounts of the cross-linked styrene-butyl acrylate copolymer - tradename SB77XL, the colorant carbon black, a polyethylene wax, a negative charge control iron organic chelate compound, and the surface treatment hydrophobic silica particles R972, and particular magnetic carrier particles comprising strontium ferrite particles coated with a blend of polyvinylidiene/polymethacrylate. Instant claim 42 does not limit the amounts or the particular composition of the binder resin, charge control agent, surface treatment agent, release agent, or magnetic carrier particles. As discussed above,

Diamond's zinc stearate meets the limitation "surface treatment agent" recited in instant claim 42. Furthermore, the instant specification does not disclose that the toner in example 4 comprises "colloid silica" which is required by instant claim 42.

Accordingly, the rejection stands.

19. Claims 30 and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,922,822 (Wilson'822).

Wilson'822 exemplifies developers comprising toner particles and a magnetic carrier comprising copper-zinc ferrite particles coated with a polysilane. The toner particles comprise 4 pph of a particular charge control agent and are surface treated with DEGUSSA R972 silica. See col. 20, lines 1-2, 12-31, and the black toner with silica comprising 4 pph of charge control agent in Table 7 at col. 24. After mixing the toner particles with the magnetic carrier for 2 minutes, the black toner particles had a charge to mass ratio (Q/m) of -30.5 μC/g. After mixing the toner particles with the magnetic carrier for 10 minutes, the toner particles had a Q/m of -29.9 μC/g. The charge ratio of the Q/m at 2 minutes to the Q/m at 10 minutes is about 1.0, which is numerically within the range of about 0.9 to about 1.1 recited in instant claim 30.

Wilson'822 does not disclose that the charge to mass ratios of its black toner particles are determined by a MECCA device as recited in the instant claim. According to the instant specification, the MECCA device separates the toner particles from the carrier by using two spaced-apart parallel electrode plates that apply both an electrical and magnetic field to the developer samples and measures the accumulated charge of the collected-separated toner particles. Instant specification, page 22, lines 1-15. Wilson'822 discloses that to determine its charge to mass ratio a weighed amount of developer is placed on a mesh screen, the toner particles are removed from the carrier by passing a vacuum tube across the backside of the mesh screen, and after all the toner is removed from the carrier, the total charge is recorded. Col. 20, lines 38-50. However, because Wilson'822's toner particles meet the compositional limitations of instant claim 30 and have a charge ratio of the Q/m at 2 minutes to the Q/m at 10 minutes of about 1.0, which is within the numerical range recited in instant claim 30, it is reasonable to presume that Wilson'822's toner particles have a 2'/10' MECCA charge ratio from about 0.9 to about 1.1 recited in instant claim 30. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

20. Claims 40 and 41 are allowable over the prior art of record.

Claims 31 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 32-34, and 37-39 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest toner particles having the particular compositions and the charge ratios recited in instant claims 31-34 and 36-41

21. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the

statutory period for reply expire later than SIX MONTHS from the date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Palestine Jenkins, whose telephone number is (703) 308-3521.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Janis L. Dote

JANIS L. DOTE
PRIMARY EXAMINER
GROUP ~~1500~~ 1700

JLD
August 25, 2003